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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/940,375

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Jens-Uwe Jurgensen

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EXAMINER

CHANG, EDITH M

ART UNIT

PAPER NUMBER

2637

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/940,375

Applicant(s)

JURGENSEN ET AL.

Examiner

Edith M Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4 and 6 is/are rejected.
- 7) ☒ Claim(s) 2 and 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 082701.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because the "(Fig. 2)" needs to be deleted.

Correction is required. See MPEP § 608.01(b).

2. For the formality of the application under the present office practice, applicant(s) is required to replace "Claims" with "I or We Claim", "The Invention Claimed Is" (or the equivalent) before the Claims part of the specification of the instant application. See MPEP 608.01(m).

3. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.

- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.

Drawings

4. The blocks pertaining elements in Fig.1, Fig.2, and Fig.4 need to have descriptive labels, in conformance with 37 CFR 1.84(n) and 1.84(o). For example, a descriptive label of “normalizer” should be inserted into Fig.4 to properly describe element (14).

Claim Objections

5. Claims 1-6 are objected to because of the following informalities:

Claim 1, line 1: “Device” is suggested changing to “A device”; line 7: “said decoder” is suggested changing to “said channel decoder”; and line 10: “limit value” is suggested changing to “predetermined limit value”.

Claim 2, line 1: “Device” is suggested changing to “The device”; and line 5: “limit” is suggested changing to “predetermined limit”; and line 6: “(α)” is suggested changing to “($1/\alpha$)”.

Claim 3, line 1: “Device” is suggested changing to “The device”.

Claim 4, line 1: “Method” is suggested changing to “A method”; and line 7: “decoder” is suggested changing to “channel decoder”; line 9: “the boundaries” is suggested changing to “boundaries”, “limit” is suggested changing to “predetermined limit”; and line 11: “normalization” is suggested changing to “said normalizing”.

Claim 5, line 1: “Method” is suggested changing to “The method”; and line 4: “limit value” is suggested changing to “predetermined limit value”.

Claim 6, line 1: “Method” is suggested changing to “The method”.

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 3 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. The terms "greater", "smaller", "high" and "low" in claims 3 and 6 are relative terms which render the claim indefinite. The terms "greater", "smaller", "high" and "low" are not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim 3 & Claim 6, lines 3-4: "to obtain a greater limit value range when said signal-to-noise ratio is low", wherein "a greater limit value range" does not clearly indicate that how does the range being greater and what is the reference to the "a greater limit value range" to be greater; and "when said signal-to-noise ratio is low" does not clearly indicate that what value of the SNR is low, how low is low;

lines 4-5, in "to obtain a smaller limit value range when said signal-to-noise ratio is high", wherein "a smaller limit value range" does not clearly indicate that how does the range being smaller and what is the reference to the "a smaller limit value range" to be smaller;

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and “when said signal-to-noise ratio is high” does not clearly indicate that what value of the SNR is high, how high is high.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuchigama et al. (US 5,079,547).

To claims 1 & 4, In FIG.1, Fuchigama teaches a device and its method of decoding the coded data from the orthogonal transformer (column 1 lines 12-20 & lines 35-39) comprising, in FIG.7:

truncation means (DE-QUANTIZER element 55 of FIG.7) de-quantizing the input signal values (the quantized main data) fall within a predetermined limit value range, x_0 to x_{i+1} of FIG.2 wherein the DE-QUANTIZER performs the truncating according to the table selected by the SELECTOR (element 54c) based on the SNR calculated from the SNR CALCULATOR element 54b; and

normalization means (INVERSE NORMALIZER element 56 of FIG.7) normalizing the main data (column 2 lines 10-30) providing the soft output (DE-QUANTIZED MAIN DATA of FIG.7) for decoding.

Fuchigama does not explicitly specify the amplitude of the main data bounded based on the signal-to-noise ration (SNR) of the main data. However, in FIG.2, Fuchigama teaches that the quatization threshold level x_i is the maximum (or truncated) amplitude of the main data and the index x_i of the quatization threshold level is the $2^{b-1} - 1$ of the number quantization bits b (column 5 lines 55-60). For example using 3 bits to quantizing the data, then there are 8 quantization levels x_0 to x_7 , the quantization level x_7 is the threshold level to truncate the amplitude of the main data. Further in column 6 lines 7-12, Fuchigama teaches that the quantization bits b is selected based on the SNR, and the quatization table with the quantization threshold level related to the b bits is selected, hencece, the quatization threshold level is changed based on the number of bits b (b based on the SNR) and therefore the threshold level $X_{2^{b-1}-1}$ (or the boundary of the amplitude) is based on the SNR.

Therefore, it would have been obvious for one of ordinary skill at the time of invention to conclude that Fuchigama teaches the main data bounded by the quatiztion threshold level of the DE-QUANTIZER based on the SNR.

Allowable Subject Matter

11. Claims 2 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
12. Claims 3 and 6 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

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13. The following is a statement of reasons for the indication of allowable subject matter:

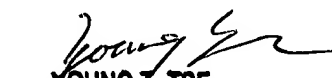
The prior art of record fails to teach or suggest, alone or in a combination, among other things, at least a device and its method for generating soft-values to be input into a channel decoder as a whole, the combination of elements and features, which includes the truncating means to determine the boundaries or limits for truncating the incoming signal values based on the absolute mean value of the incoming signal values multiplied by a scaling factor, and the scaling factor is dependent on the signal-to-noise-ratio of the incoming signal value.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayanti Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
November 19, 2004


YOUNG T. TSE
PRIMARY EXAMINER